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STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

CONFIDENTIAL

TO : The Files - Contract 605

DATE: 27 February 1959

FROM : [redacted] 25X1

SUBJECT: Trip Report - [redacted] 25X1

1. On 27 February 1959 a trip was made to [redacted] 25X1 in Cedar Rapids, Iowa, for the purpose of monitoring progress on Contract 605, Task Order's 1, 2, 3, and 4. Present at the discussions were:

[redacted] 25X1

2. Progress on Task 1, covering the design and development of a transportable inflatable antenna system, is satisfactory. Five complete antenna systems are to be delivered. The majority of the model shop work has been completed with the exception of the final design and fabrication of the feeds and feed supports. The inflatable bags for the antenna are on order but they have not yet been received by [redacted] 25X1 Instruction books will be written upon completion of the antenna work. Delivery of the antennas is expected by 1 April 1959 and delivery of the instruction books by 1 May 1959.

3. Work on Task 2, covering the design and fabrication of a broadband (50 to 600 mc) antenna to be used with the CS-8 collection system is essentially complete. The antenna is being returned to [redacted] for photography and minor mechanical modifications. [redacted] 25X1 has agreed to check the gain of the antenna from 30 to 60 mc to determine if the antenna is usable over this frequency range. Results of an R&D Laboratory evaluation indicated that the antenna was not usable below 55 mc; however, it has since been determined that the polarization of the antenna rotates below 55 mc. It is hoped that there will be a certain orientation of the antenna which will produce gain over a dipole in this frequency range. Upon completion of the small amount of work involved above, the antenna will be returned to us along with instruction books.

4. Work on Phase 1 of Task 3 is complete and the final report has been sent from [redacted]. This task covered a feasibility study to 25X1 determine the possibility of constructing a complete antenna-filter [redacted] 25X1

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seem to be most satisfactory, while the range from 10 to 40 kmc would be covered by an electromagnetic horn of such small dimensions that it could be hand held. A crystal and crystal holder combination has been found which will provide sensitivities on the order of -53 dbm over the operating range of the system. A proposal for Phase 2 of Task 3, which covers the actual construction of several antenna systems of the above type, will be sent from [redacted] The proposal will request among other things that we provide them with signal generators and measuring equipment to cover the range of 15 to 40 kmc. [redacted] does very little work in this frequency range and therefore does not have the equipment to satisfactorily carry out a proper evaluation of antenna systems in this range. 25X1 25X1

5. Task 4, covering the design and development of five sectionalized dish antennas and one solid dish antenna, will be completed by 1 April 1959, this being the scheduled delivery date of the equipment. One solid dish without mounting hardware has been delivered. For the remaining work, feeds have been designed and construction is nearing completion. This work has been delayed because of the heavy work load which [redacted] has and the resultant lack of manpower and time to devote full attention to our projects. 25X1

6. Proposals covering the design and development of five 30 to 600 mc log periodic antennas and five 30 to 1000 mc log periodic antennas have been sent in. Several questions came up about the specifications for the yoke-mounted rotator-controlled parabolic antenna system and our clarification of requirements is necessary before a proposal can be submitted for the work by [redacted]. Points covered included the firm requirement of certain gain and bandwidths at certain frequencies and the location of the receiver. If the receiver is to be mounted at the base of the supporting structure, the resultant attenuation of the coax feedline will render the system quite inefficient. Mounting the receiver on the tower near the antenna would eliminate this problem. In order to cover the frequency range of 6 to 10 kmc, [redacted] would like to use waveguide feed for the antennas, subject to our approval. Because of their limited manpower at present, [redacted] does not wish to undertake the design and construction of the mounting assemblies for the antennas and would rather purchase the mountings from another source. 25X1 25X1 25X1

7. [redacted] was questioned as to their interest in undertaking a 2-month development program to design and fabricate a rotatable antenna system covering the range of 1 to 10 kmc. They expressed considerable interest in the project although they are unwilling to undertake the design and construction of the mechanical mountings and the direction indicators. It is hoped that these could be purchased ready-made from another source. Upon the submission of a firm set of requirements, [redacted] will submit a proposal for the development of the antennas. They feel that they can provide an essentially off-the-shelf antenna which will provide good performance from 1 to 8 kmc and fair performance from 8 to 11 kmc. This antenna would be of the log periodic variety consisting of four half-log-periodic structures so phased as to provide the proper pattern with about a 30 degree beamwidth. 25X1 25X1

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8. We were advised by [redacted] that in their requests for reimbursement an item for computer time expenses will appear. [redacted] through the use of an IBM 650 Computer, can measure the pattern characteristics of one half of the log periodic structure and then predict the patters of various arrays constructed from the half-log-periodic structures. This procedure is typically equivalent to constructing about 50 model antennas and evaluating them on their pattern range. It is felt that the use of a computer saves us both time and money during the development of a given type of antenna. 25X1 25X1

9. [redacted] was informed of the importance of requesting advance authorization for trips and other expenditures not specifically covered by the contract. They were also advised on the necessity of getting their statements of royalties and patents in as soon as possible so that contracts may be terminated at the completion of the work. 25X1

10. In general, the work which [redacted] performs is very satisfactory. The time which they take to complete a given job is often less than satisfactory however. The reasons for the delays seem to lie in the direction of limited manpower due to the heavy work load which [redacted] has at present. Another delay is caused by the lack of equipment purchasing priorities for the purchase of equipment to complete our projects. It is suggested that we write a letter to [redacted] requesting that they establish priorities for the purchase of parts. 25X1 25X1 25X1

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